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# United States Patent [19]

King et al.

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## [54] METHOD AND APPARATUS FOR ANNOTATING FULL MOTION VIDEO AND OTHER INDEXED DATA STRUCTURES

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[51] Int. Cl.<sup>6</sup> ..... **G06F 15/00**

[52] U.S. Cl. .... **395/806; 395/761**

[58] Field of Search ..... **395/154, 153, 395/155, 156, 144, 147, 145, 157, 160, 161**

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Primary Examiner—Mark K. Zimmerman

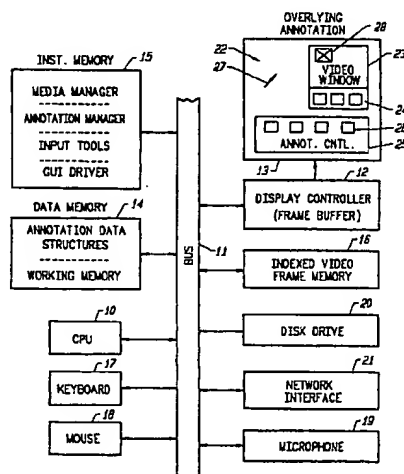
Assistant Examiner—Joseph R. Burwell

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## [57] ABSTRACT

Full motion digital video frames, or other indexed data structures, are annotated with text, graphics, and digital audio without modifications to the original video information. The video and annotations are stored separately. An indexing scheme relates the annotations to the video frames. On full motion video playback, the annotations are displayed on the originally annotated frames. The technique involves displaying the file of indexed data structures using a file display routine, and selecting in response to user input an indexed data structure to be annotated from the file of indexed data structures being displayed. Next, an annotation data structure is created in response to user input using an annotation routine without modifying the selected data structure. The annotation data structure includes a graphical element for display overlaying the selected data structure and an indication of an index value for the selected data structure. The annotation data structure is stored in an annotation memory apart from the file of indexed data structures. During playback, the annotation memory is monitored to detect annotation data structure for indexed data structures currently being displayed. If an annotation data structure is detected for the current indexed data structure, a graphical element overlies the indexed data structure on the display without modifying the indexed data structure. Text process documents can be handled much in the same manner. Also, annotation from several users may be merged and viewed in one batch.

48 Claims, 8 Drawing Sheets



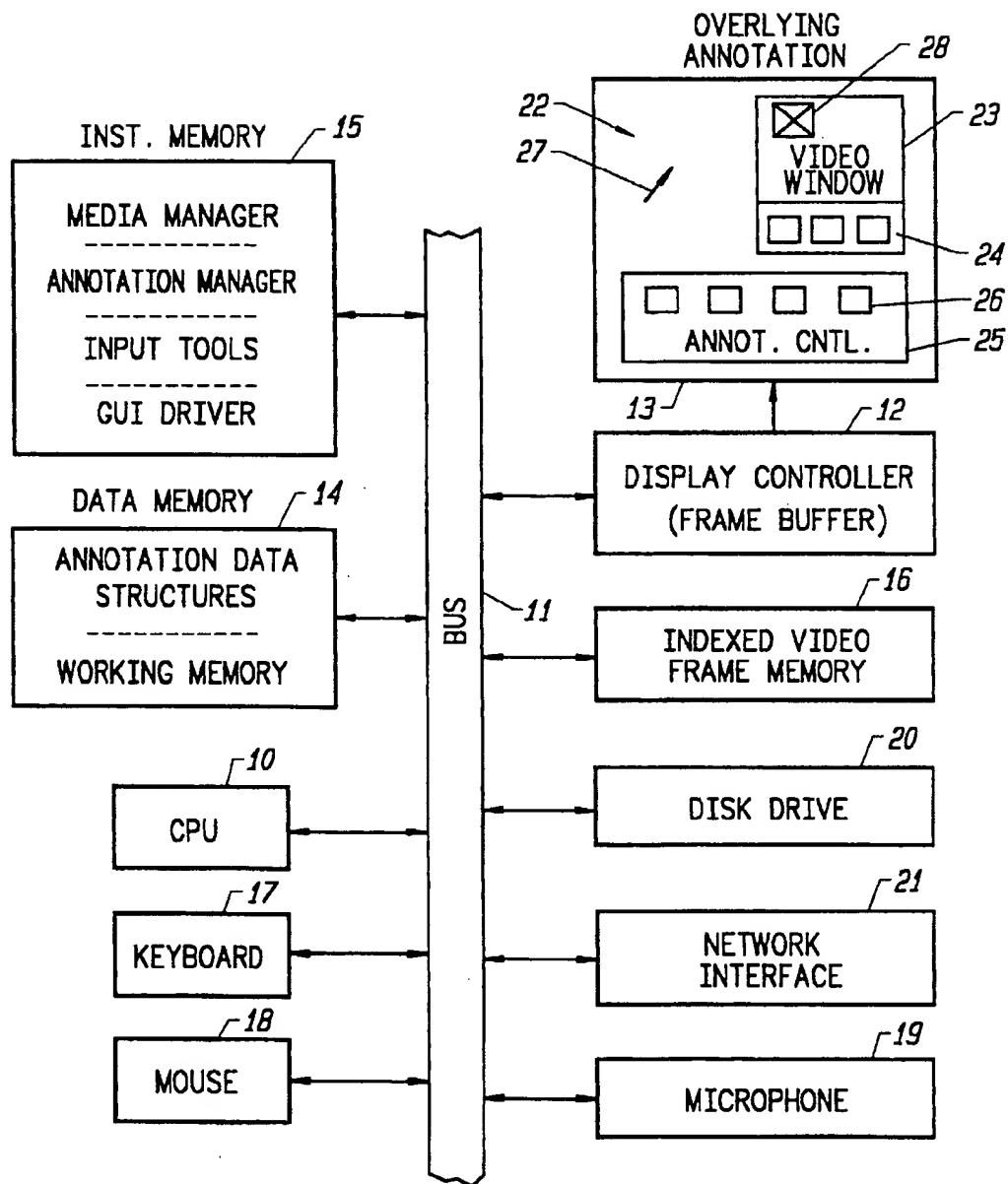


FIG. 1

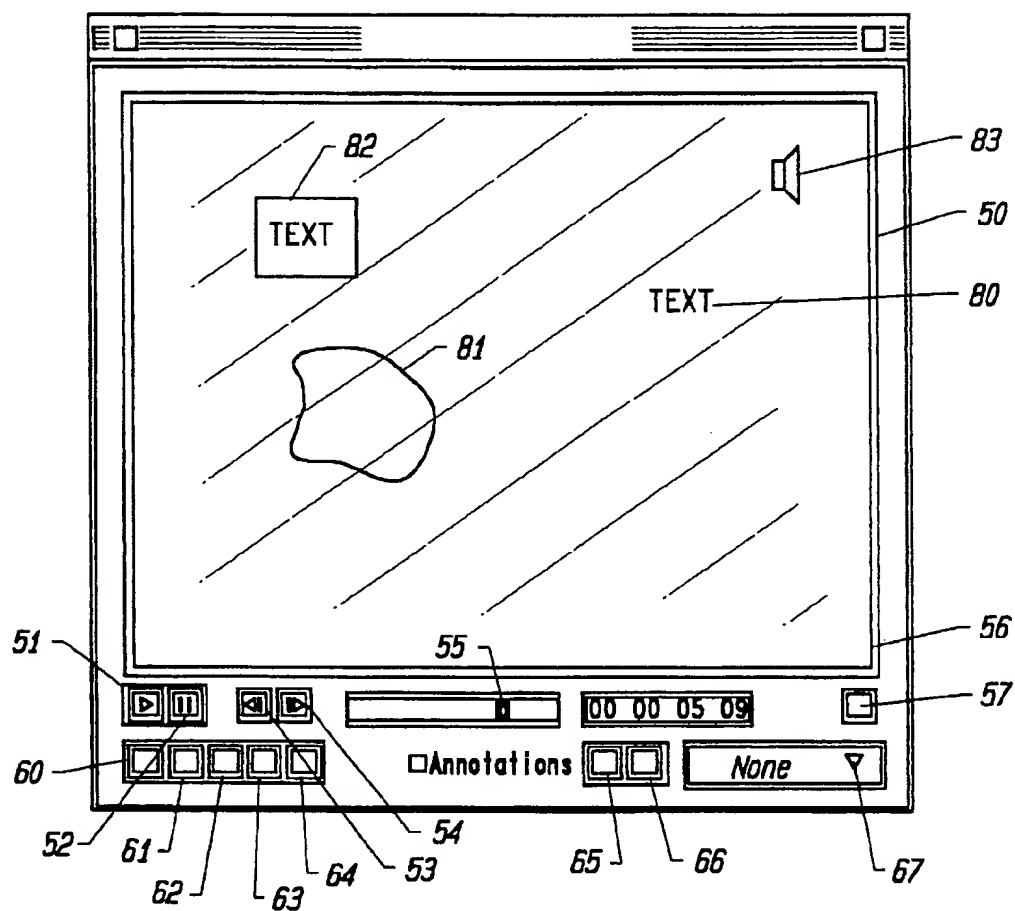


FIG. 2

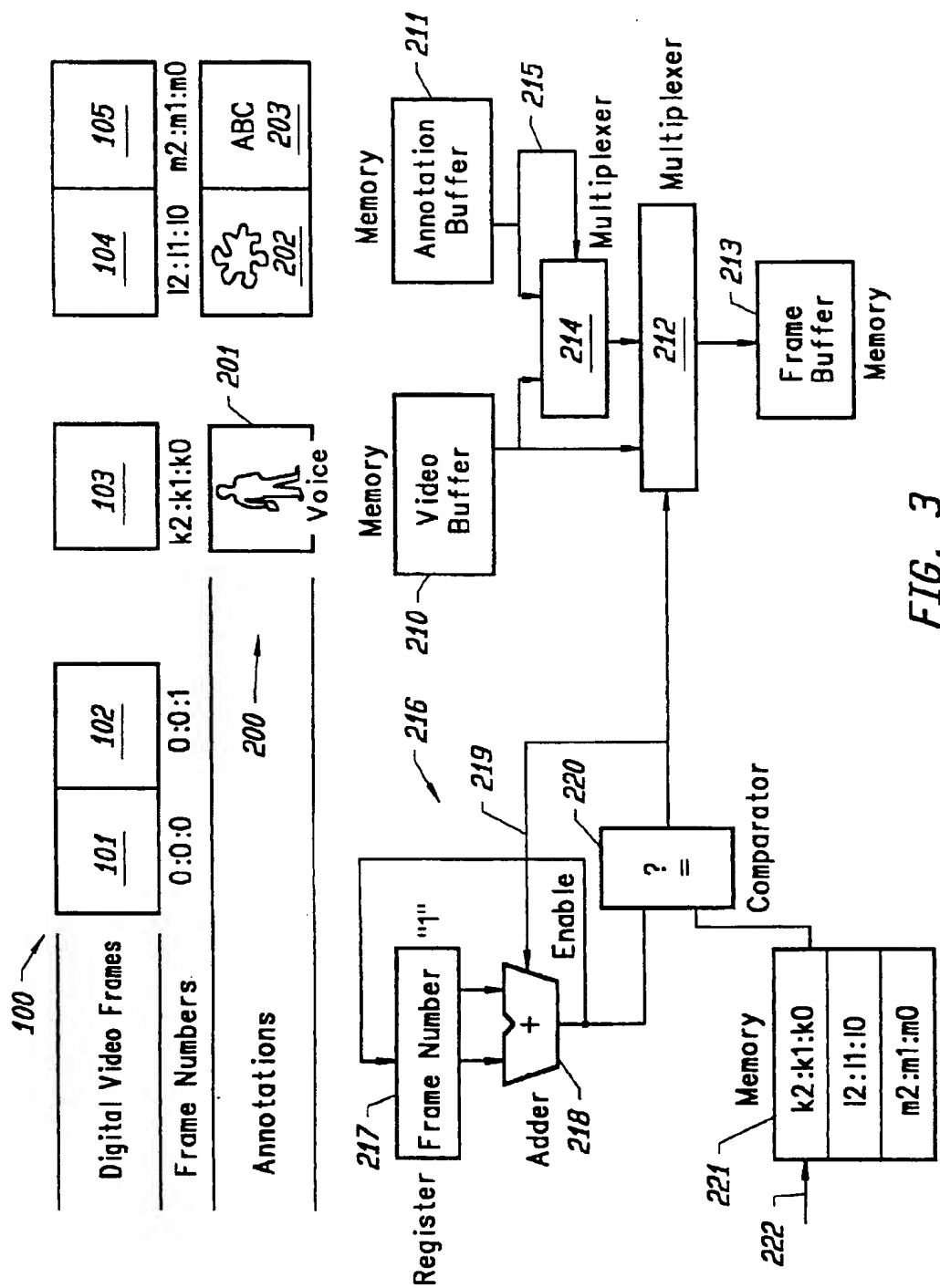


FIG. 3

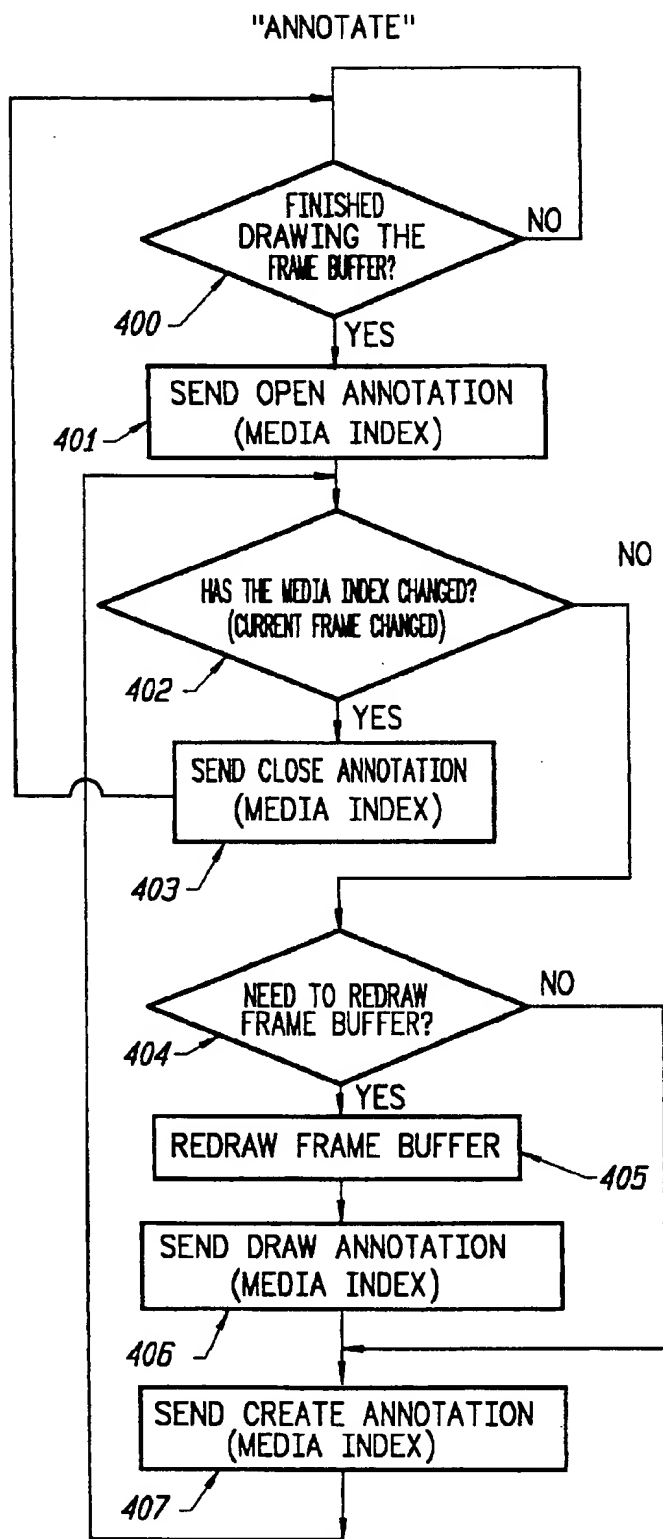


FIG. 4

"CREATE ANNOTATION (MEDIA INDEX)"

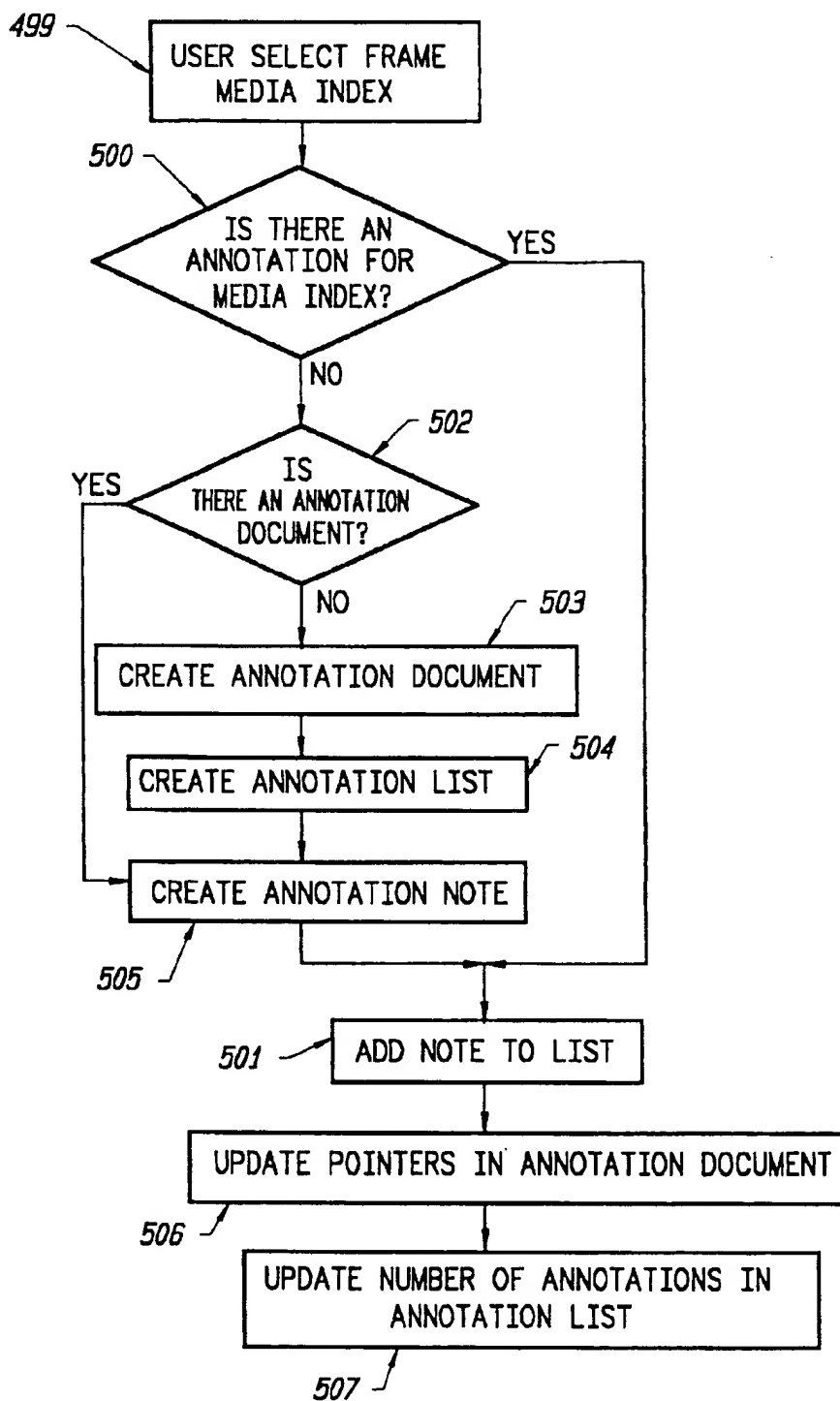


FIG. 5

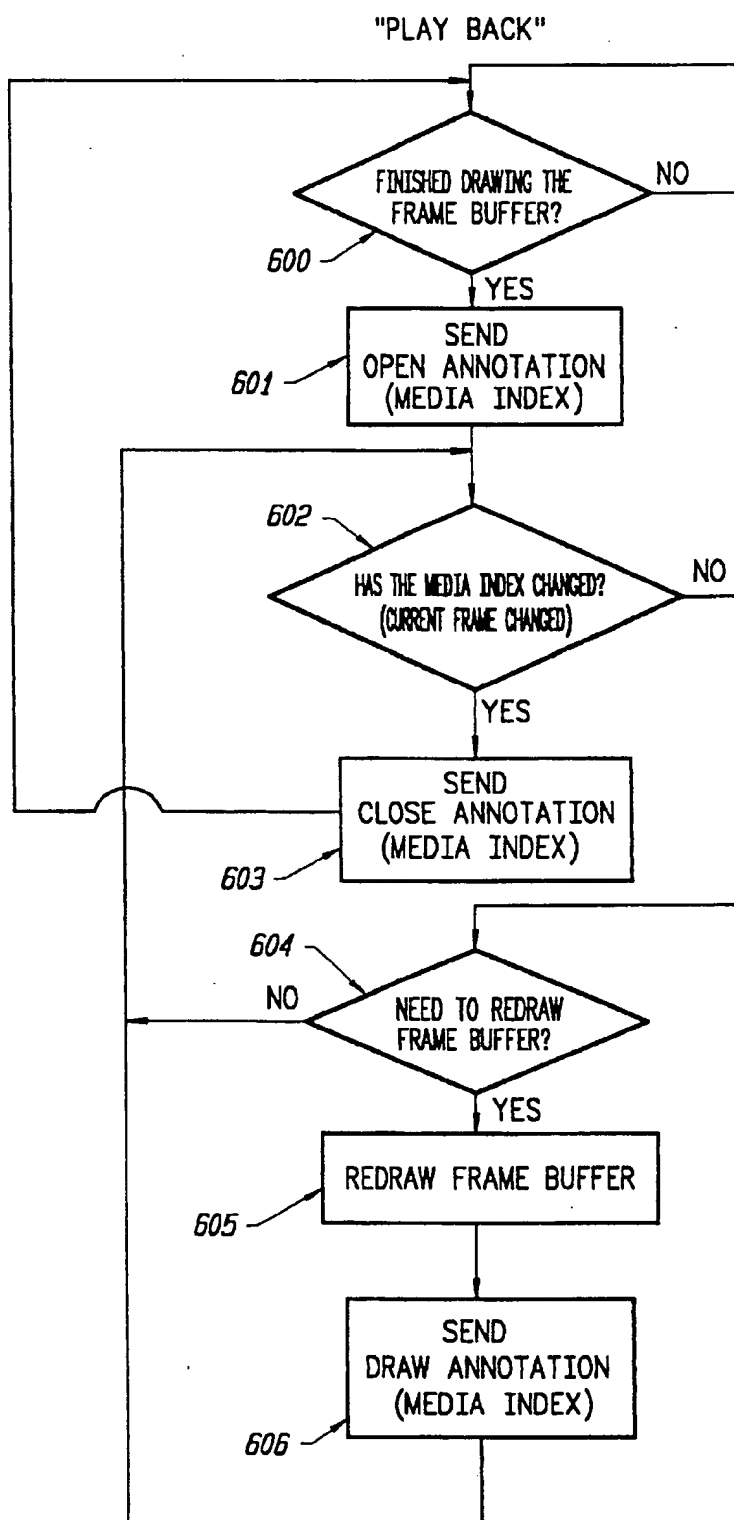


FIG. 6

"OPEN ANNOTATION (MEDIA INDEX)"

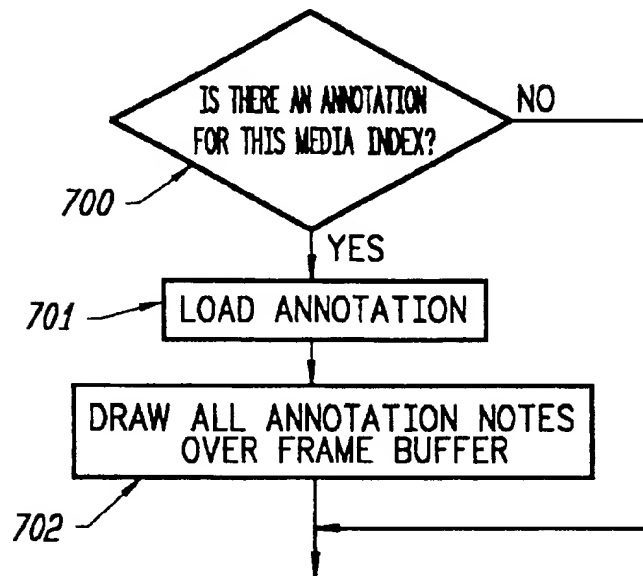


FIG. 7

"DRAW ANNOTATION (MEDIA INDEX)"

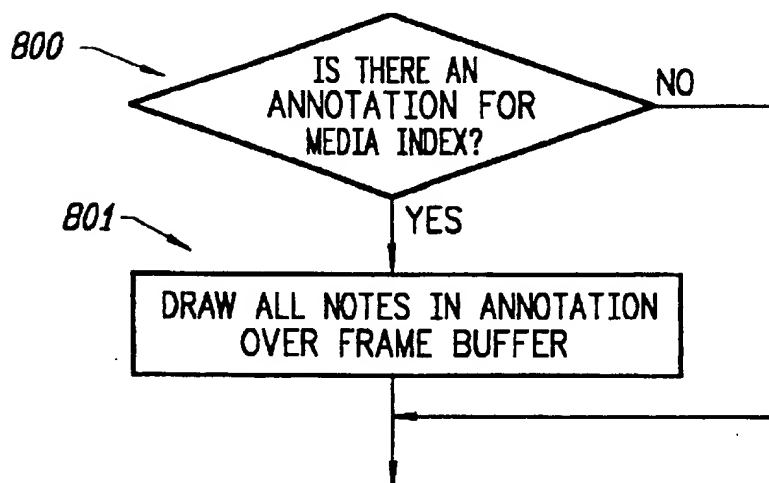


FIG. 8



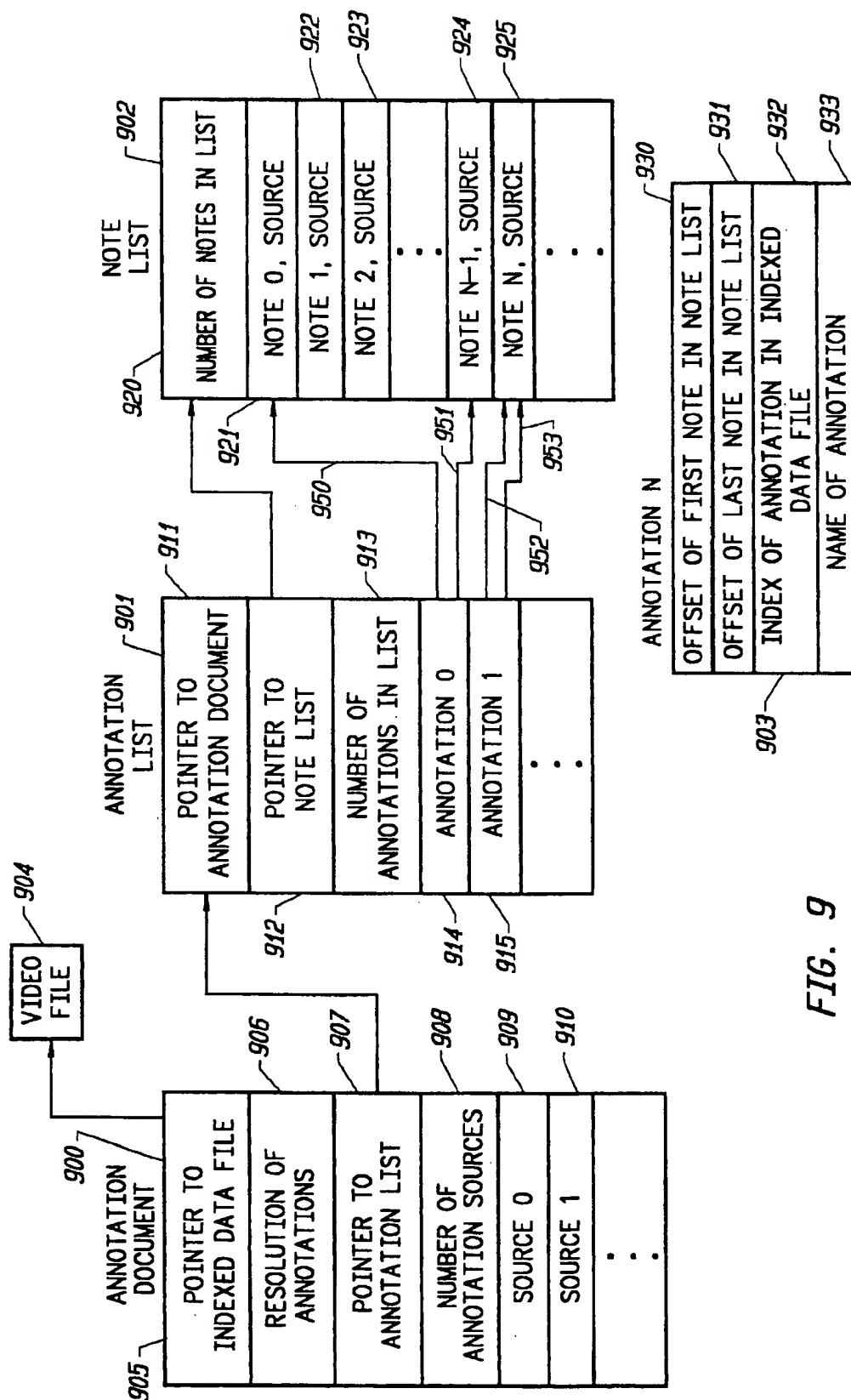


FIG. 9